Calculated Age – Reference Guide

Version 1.0, December 1999

Topic **Page**

Summary: Calculated Age

Definitions

General definition of Calculated Age

The calculated age denotes a person's age at the time of a specific event (e.g., a diagnosis, treatment, specimen collection, or death). It is calculated as the time span between the person's date of birth and the date of the event, and is therefore dependent on the collection of both the person's date of birth and the event. In addition, a calculated age unit of time ("agetype") is associated with the calculated age.

The calculated age value and calculated agetype are determined by one of the defined age algorithms and are not stored in CIPHER-defined databases. However, a user may choose to apply one of the defined age algorithms and "spin off" calculated age data into a program-specific database. Note: If the algorithm is unable to calculate an age value, it will return a missing value reason (MVR) for the missing calculated age.

Associated definitions for the Calculated Age data concept

Age: A person's age at the time of an event represented as a whole number using a single unit of time. Fractional age values such as 1.5 years or mixed time units such as 2 years and 3 months are not allowed. (For infants under one year of age, when the specified unit of time for age is "years," the age value will be 0 years.)

Event: A discrete event or occurrence at a point in time in a person's life, such as a diagnosis, treatment, specimen collection, or death.

Agetype: The unit of time associated with an age (e.g., years or months).

Stated Age: The stated age denotes a collected value of a person's age at the time of an event. It is provided in response to a request for the person's age at the defined event; the value and agetype are captured on hardcopy forms during surveillance. (Refer to the Stated Age section for additional information.)

Age Algorithm: A defined methodology for deriving a calculated age. Webster's definition of algorithm is "a step-by-step procedure for solving a problem or accomplishing some end, especially by a computer." An age algorithm is given input parameters upon which it performs a defined procedure to derive the values of the output parameters. The procedure includes the handling of missing date components, which may affect the ability to calculate an age in a specific agetype. CIPHER defined five different age algorithms:

Best Age Estimate:	calculates the best estimate of age value, based on the input parameters
Age in Years:	calculates the age in years, based on the input parameters
Age in Months:	calculates the age in months, based on the input parameters
Age in Weeks:	calculates the age in weeks, based on the input parameters
Age in Days:	calculates the age in days, based on the input parameters.

Data Storage and Field Values

As described above, calculated age data are derived and are not stored in CIPHER-defined databases. However, a user may choose to apply one of the defined age algorithms and "spin off" calculated age data into a program-specific database. In this scenario, there are 3 data elements used to define the data concept Calculated Age. The data element names may need to be unique for each event and hence should follow a naming schema to identify them uniquely, for example, calculated age at diagnosis, calculated age at treatment.

Calculated Age

Description:	Calculated age at the date of an event
Variable Name:	CALCAGE plus an event-specific addition if needed
Type:	character
Length:	3
Reported to CDC:	TBD – presume will not be applicable for calculated data elements
Field Values:	000-998

Calculated Agetype

Description:	Unit of time for the calculated age
Variable Name:	CALCAGETYPE plus an event-specific addition if needed
Type:	character
Length:	1
Reported to CDC:	TBD – presume will not be applicable for calculated data elements
Field Values:	1 - Years 2 - Months 3 - Weeks 4 - Days

Consistent with Stated Age Indicator

Description:	Indicator of consistency between calculated age value from algorithm with the stated age value for the event
Variable Name:	CONSIND plus an event-specific addition if needed
Type:	character
Length:	1
Reported to CDC:	TBD – presume will not be applicable for calculated data elements
Format:	Conforms to the CIPHER definition of Yes/No Indicator
Field Values:	Y - Yes N - No

Missing Values

The Calculated Age may contain the missing value of "blank." The use of a Missing Value Reason data element must adhere to the CIPHER definition and rules associated with missing data as described in Appendix I - Missing Value Reason. Like Calculated Age, the reason why an age cannot be calculated is determined by the algorithm. The value of the Missing Value Reason is determined by the selected age algorithm and returned as an output parameter, to provide interested programs with the opportunity to use these Missing Value Reason data.

Processing Overview

The age algorithms are defined as shared software components available to all programs and partners. The definition of the algorithms provides a common method to calculate age, thus ensuring compatibility. The algorithms may be invoked through multiple mechanisms using input and output parameters to support processing, analyses, and reporting needs for a calculated age. All five age algorithms use a common structure with required and optional input and output parameters. Each follows a defined procedure to derive a calculated age value based on input parameters. All the algorithms accommodate missing date components and the relative order and time sequence of all the data elements involved in calculating an age for an event. If the algorithm cannot determine the age value, the Calculated Age value will be blank or missing, and the Missing Value Reason (MVR) will be set to the appropriate value.

The identified events requiring a calculated age must have an event date that is defined for the program area, captured on hardcopy and electronic form, and stored in the database in accordance with the CIPHER Guide. The person's date of birth is always required for a calculated age and is also captured on hardcopy and electronic form and stored in the database in accordance with the CIPHER Guide. Both the dates must be in the CIPHER date format and follow the guidelines outlined in Appendix II – Dates.

If one of the required dates is missing in its entirety (e.g., date of birth or event date is all blank), the algorithm is unable to calculate the age. It will return a value of blank for the Calculated Age value (missing) and set the Calculated Age MVR field value. The MVR values are outlined in Appendix I – Missing Value Reason, and use system-generated values. If the algorithm is unable to calculate the age due to one or more missing date components in either date, it will return a value of blank for the Calculated Age value and set the Calculated Age MVR.

A profile of each algorithm is provided below:

"Best Age Estimate" Algorithm:
This algorithm allows a user to calculate the best age value based on the input parameters; hence the calculated agetype of the result will vary. If the algorithm cannot determine a calculated age value, it will return a missing value and set the MVR.

The algorithm uses the following input parameters:

Required:	Date of birth
	Date of event
	Calculated agetype
Optional:	Stated age
	Stated agetype

The algorithm returns the following output parameters:

Required:	Calculated age value
	Calculated agetype
	Calculated age MVR
Optional:	Consistent with stated age indicator

The Best Age algorithm requires three input parameters to derive a calculated age and return the result in three required output parameters. The calculated agetype value for this algorithm will vary based on the input parameters, and also is provided to enhance the usability of the result. The calculated age value will be in the valid range of 0-998. If the Best Age calculation is a value larger than 998, the output parameters for calculated age and calculated agetype will be adjusted to fit the valid range. For example, if the Best Age calculation is 1,228 weeks, the output parameters will be 307 months.

The use of the optional input and output parameters gives the user the option to invoke further procedures in the calculation of the Best Age Estimate, based on the value of the stated age for the event. The algorithm will calculate the best age value and then compare it with the stated age value, accommodating for the stated agetype (will adjust values accordingly for comparison of like agetype values). If the calculated best age is

consistent with the stated age, the output parameter indicator will be set to "Yes"; if they are not consistent, the indicator will be set to "No." The Best Age algorithm will also use the stated age values if there are missing date components, to aid in the determination of the calculated best age value. If the stated age is provided, the algorithm will use it as a guide in determining the calculated best age value, based on consistency between the two values.

Several examples are shown below to illustrate the Best Age algorithm input and output parameters. Dates in these examples are formatted as month, day, year (MM/DD/YYYY).

(1) Person Date of Birth (DOB) and Event Date Fully Defined – Required Parameters

Years:

Required Input Parameters		Required Output Parameters	
DOB:	12/05/1978	Calculated Age:	4
Event date:	06/17/1983	Calculated Agetype:	1 for years
Requested agetype:	1 for years	Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

Months:

Required Input Parameters		Required Output Parameters	
DOB:	12/05/1978	Calculated Age:	54
Event date:	06/17/1983	Calculated Agetype:	2 for months
Requested agetype:	2 for months	Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

Weeks:

Required Input Parameters		Required Output Parameters	
DOB:	12/05/1978	Calculated Age:	218
Event date:	06/17/1983	Calculated Agetype:	3 for weeks
Requested agetype:	3 for weeks	Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

Days:

Required Input Parameters		Required Output Parameters	
DOB:	12/05/1978	Calculated Age:	218
Event date:	06/17/1983	Calculated Agetype:	3 for weeks
Requested agetype:	4 for days	Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(2) Person Date of Birth (DOB) Partially Defined and Event Date Fully Defined, Can Calculate – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	12/ /1978	Calculated Age:	4
Event date:	06/17/1983	Calculated Agetype:	1 for years
Requested agetype:	1 for years	Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(3) Person Date of Birth (DOB) Partially Defined and Event Date Fully Defined, Cannot Calculate – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	/ /1978	Calculated Age:	blank
Event date:	06/17/1983	Calculated Agetype:	1 for years
Requested agetype:	1 for years	Calculated Age MVR:	N
Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(4) Person Date of Birth (DOB) Fully Defined and Event Date Partially Defined, Can Calculate – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	12/05/1978	Calculated Age:	4
Event date:	06/ /1983	Calculated Agetype:	1 for years
Requested agetype:	1 for years	Calculated Age MVR:	blank

Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(5) Person Date of Birth (DOB) Fully Defined and Event Date Partially Defined, Cannot Calculate – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	12/05/1978	Calculated Age:	blank
Event date:	/ /1983	Calculated Agetype:	2 for months
Requested agetype:	2 for months	Calculated Age MVR:	N

Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(6) Person Date of Birth (DOB) Missing and Event Date Fully Defined – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	/ /	Calculated Age:	blank
Event date:	06/17/1983	Calculated Agetype:	1 for years
Requested agetype:	1 for years	Calculated Age MVR:	M

Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(7) Person Date of Birth (DOB) Defined and Event Date Missing – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	12/05/1978	Calculated Age:	blank
Event date:	/ /	Calculated Agetype:	1 for years
Requested agetype:	1 for years	Calculated Age MVR:	M
Optional Input Parameters		**Optional Output Parameter**	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(8) Person Date of Birth (DOB) Partially Defined and Event Date Partially Defined, Can Calculate – Required Parameters

Years:

Required Input Parameters		Required Output Parameters	
DOB:	12/ /1978	Calculated Age:	4
Event date:	06/ /1983	Calculated Agetype:	1 for years
Requested agetype:	1 for years	Calculated Age MVR:	blank
Optional Input Parameters		**Optional Output Parameter**	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

Months:

Required Input Parameters		Required Output Parameters	
DOB:	12/ /1978	Calculated Age:	54
Event date:	06/ /1983	Calculated Agetype:	2 for months
Requested agetype:	2 for months	Calculated Age MVR:	blank
Optional Input Parameters		**Optional Output Parameter**	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(9) Person Date of Birth (DOB) Partially Defined and Event Date Partially Defined, Cannot Calculate – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	12/ /1978	Calculated Age:	blank
Event date:	/ /1983	Calculated Agetype:	1 for years
Requested agetype:	1 for years	Calculated Age MVR:	N

Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(10) Adjust Calculated Agetype due to Out of Range Calculated Age Value – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	12/05/1978	Calculated Age:	236
Event date:	06/17/1983	Calculated Agetype:	3 for weeks
Requested agetype:	4 for days	Calculated Age MVR:	blank

Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(11) Adjust Calculated Agetype due to Missing Date Components – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	12/ /1991	Calculated Age:	1
Event date:	01/ /1992	Calculated Agetype:	2 for months
Requested agetype:	4 for days	Calculated Age MVR:	blank

Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(12) Person Date of Birth (DOB) Partially Defined and Event Date Partially Defined, Can Calculate and Changes Agetype – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	12/ /1978	Calculated Age:	4
Event date:	06/ /1983	Calculated Agetype:	1 for years
Requested agetype:	2 for months	Calculated Age MVR:	blank
Optional Input Parameters		**Optional Output Parameter**	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(13) Person Date of Birth (DOB) Partially Defined and Event Date Fully Defined, Can Calculate and Changes Agetype – Optional Parameters

Years:

Required Input Parameters		Required Output Parameters	
DOB:	06/ /1995	Calculated Age:	3
Event date:	05/31/1999	Calculated Agetype:	1 - years
Requested agetype:	1 - years	Calculated Age MVR:	blank
Optional Input Parameters		**Optional Output Parameter**	
Stated age:	47	Consistency Indicator:	Yes
Stated agetype:	2 - months		

Months:

Required Input Parameters		Required Output Parameters	
DOB:	06/ /1995	Calculated Age:	47
Event date:	05/31/1999	Calculated Agetype:	2 - months
Requested agetype:	2 - months	Calculated Age MVR:	blank
Optional Input Parameters		**Optional Output Parameter**	
Stated age:	47	Consistency Indicator:	Yes
Stated agetype:	2 - months		

Weeks:

Required Input Parameters		Required Output Parameters	
DOB:	06/ /1995	Calculated Age:	47
Event date:	05/31/1999	Calculated Agetype:	2 - months
Requested agetype:	3 - weeks	Calculated Age MVR:	blank
Optional Input Parameters		**Optional Output Parameter**	
Stated age:	47	Consistency Indicator:	Yes
Stated agetype:	2 - months		

Days:

Required Input Parameters		Required Output Parameters	
DOB:	06/ /1995	Calculated Age:	47
Event date:	05/31/1999	Calculated Agetype:	2 - months
Requested agetype:	4 - days	Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	47	Consistency Indicator:	Yes
Stated agetype:	2 - months		

(14) Person Date of Birth (DOB) Partially Defined and Event Date Partially Defined – Optional Parameters

Required Input Parameters		Required Output Parameters	
DOB:	/ /1995	Calculated Age:	0
Event date:	12/ /1995	Calculated Agetype:	1 - years
Requested agetype:	1 - years	Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	11	Consistency Indicator:	Yes
Stated agetype:	2 - months		

(15) Person Date of Birth (DOB) Partially Defined and Event Date Partially Defined – Optional Parameters

Required Input Parameters		Required Output Parameters	
DOB:	/ /1995	Calculated Age:	blank
Event date:	12/ /1995	Calculated Agetype:	1 - years
Requested agetype:	1 - years	Calculated Age MVR:	N
Optional Input Parameters		Optional Output Parameter	
Stated age:	13	Consistency Indicator:	No
Stated agetype:	2 - months		

"Age in Years" Algorithm:

This algorithm allows a user to mandate the calculated agetype to be years, because it uses a procedure to calculate an age in years only. If it cannot determine an age value in years it will return a missing value and set the MVR accordingly.

The algorithm uses the following input parameters:

Required:	Date of birth Date of event
Optional:	Stated age Stated agetype

The algorithm returns the following output parameters:

Required:	Calculated age value Calculated agetype value of 1 – Years Calculated age MVR
Optional:	Consistent with stated age indicator

The Age in Years algorithm requires two input parameters to derive a calculated age in years and return the result in three required output parameters. By definition, the calculated agetype value for this algorithm will always be "1" (Years) and is provided to enhance the usability of the result. The calculated age value will be in the valid range of 0-998. If the age in years is a value larger than 998, the calculated age value will be blank (to indicate missing) and the MVR will be set to "F" (failed calculation) because this is not a valid age value in years.

The use of the optional input and output parameters allows the user the option of invoking further procedures in the calculation of the age in years, based on the value of the stated age for the event. The algorithm will calculate the age in years value and then compare it with the stated age value accommodating for the stated agetype (if not in years, this will be adjusted accordingly). If the calculated age in years is consistent with the stated age, the output parameter indicator will be set to "Y" (Yes); if they are not consistent, the indicator will be set to "N" (No). The Age in Years algorithm will also use the stated age values if there are missing date components, to aid in the determination of the calculated age value. Because a valid date format is Year only, and if either input date is missing its month value, the algorithm cannot determine age in years. If the stated age is provided, the algorithm will use it as a guide in determining the calculated age value based on consistency between the two values.

Several examples are shown below to illustrate the Age in Years algorithm input and output parameters. Dates in these examples are formatted as month, day, year (MM/DD/YYYY).

(1) Person Date of Birth (DOB) and Event Date Fully Defined – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	12/05/1978	Calculated Age:	4
Event date:	06/17/1983	Calculated Agetype:	1 for years
		Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(2) Person Date of Birth (DOB) and Event Date Fully Defined – Optional Parameters

Required Input Parameters		Required Output Parameters	
DOB:	12/05/1978	Calculated Age:	4
Event date:	06/17/1983	Calculated Agetype:	1 for years
		Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	4	Consistency Indicator:	Yes
Stated agetype:	1 - years		

(3) Person Date of Birth (DOB) and Event Date Fully Defined – Optional Parameters

Required Input Parameters		Required Output Parameters	
DOB:	12/05/1978	Calculated Age:	4
Event date:	06/17/1983	Calculated Agetype:	1 for years
		Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	3	Consistency Indicator:	No
Stated agetype:	1 - years		

(4) Person Date of Birth (DOB) and Event Date Fully Defined – Optional Parameters

Required Input Parameters		Required Output Parameters	
DOB:	12/05/1978	Calculated Age:	4
Event date:	06/17/1983	Calculated Agetype:	1 for years
		Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	207	Consistency Indicator:	No
Stated agetype:	3 - weeks		

(5) Person Date of Birth (DOB) and Event Date Partially Defined – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	/ /1978	Calculated Age:	blank
Event date:	/ /1983	Calculated Agetype:	1 for years
		Calculated Age MVR:	N
Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

(6) Person Date of Birth (DOB) and Event Date Partially Defined – Optional Parameters

Required Input Parameters		Required Output Parameters	
DOB:	/ /1982	Calculated Age:	0
Event date:	/ /1983	Calculated Agetype:	1 for years
		Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	11	Consistency Indicator:	Yes
Stated agetype:	2 - months		

(7) Person Date of Birth (DOB) and Event Date Partially Defined – Optional Parameters

Required Input Parameters		Required Output Parameters	
DOB:	/ /1970	Calculated Age:	5
Event date:	/ /1975	Calculated Agetype:	1 for years
		Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	5	Consistency Indicator:	Yes
Stated agetype:	1 - years		

(8) Person Date of Birth (DOB) and Event Date Partially Defined – Optional Parameters

Required Input Parameters		Required Output Parameters	
DOB:	/ /1960	Calculated Age:	blank
Event date:	/ /1975	Calculated Agetype:	1 for years
		Calculated Age MVR:	N
Optional Input Parameters		Optional Output Parameter	
Stated age:	5	Consistency Indicator:	No
Stated agetype:	1 - years		

(9) Person Date of Birth (DOB) and Event Date Partially Defined – Required Parameters

Required Input Parameters		Required Output Parameters	
DOB:	11/ /1965	Calculated Age:	9
Event date:	06/ /1975	Calculated Agetype:	1 for years
		Calculated Age MVR:	blank
Optional Input Parameters		Optional Output Parameter	
Stated age:	blank	Consistency Indicator:	blank
Stated agetype:	blank		

Age in Months/Weeks/Days Algorithms (To Be Written):
This algorithm allows a user to mandate the calculated agetype to be months/weeks/days because it uses a procedure to calculate an age in the specified unit only. If it cannot determine an age value in the required unit it will return a missing value and set the MVR accordingly to "F" for failed calculation.

EDI Summary

This section is not applicable for incoming EDI messages for Calculated Age, because the data are not stored. If the Calculated Age is required for an export record, the value will be calculated according to the program requirements for each event, and moved to the outbound message.

Health Level 7

Input: The Calculated Age is not stored and hence does not require transfer from the incoming message to CIPHER.

Output: In general, Calculated Age will be derived according to the program specifications for the event and moved to the message. All three Calculated Age data elements will be moved to the appropriate fields and the Calculated Age Missing Value Reason transferred to a Z segment.

X12

Input: The Calculated Age is not stored and hence does not require transfer from the incoming message to CIPHER.

Output: In general, Calculated Age will be derived according to the program specifications for the event and moved to the message. All required Calculated Age data elements will be moved to the appropriate fields.

Discussion

The CIPHER workgroup identified two key requirements in relation to the handling of a person's age at the time of an event: (1) the ability to capture a stated age and (2) the ability to calculate an age value based on the person's date of birth and the event date. Both stated and calculated ages use an associated data element, agetype, to identify the unit of time for the age value. Examples of potential age events are current age, age at diagnosis, age at onset of treatment, and age at death. The identification of events requiring an age is program-specific for both options.

The workgroup also recognized the need to derive the age value for a specified agetype value as well as the best calculated age based on the input parameters. Therefore, several calculated age algorithms were defined to support these requirements. The calculated age algorithms are defined as common software components that calculate an age value which is not stored in the database. This is in accordance with a CIPHER guiding principle not to store derived values for data elements.

The Calculated Age refers to a person's age at the time of an event represented as a whole number measured by a single unit of time. Therefore, fractional calculated ages such as 1.5 years or mixed time units such as 2 years and 3 months are not allowed. Calculated Age is by definition calculated, or derived, from the value of two date data elements – the person's date of birth and the event date – and a defined calculated agetype. The two date data elements must be contained in the system database.

The Calculated Age definition allows each program area to define which events require a calculated age and its unit of time. The identified events requiring a Calculated Age must have an event date that is defined for the program area, captured on hardcopy and electronic form, and stored in the database in accordance with the CIPHER Guide. The person's date of birth is always required for Calculated Age**.** The Calculated Agetype is selected for each request and there are four defined values for Calculated Agetype.

The Calculated Age "best age" algorithm is designed to be a common software component to be shared across programs to ensure consistency and comparability of calculated ages. The algorithm uses a best estimate of age calculation based on the value of the two dates (event date and date of birth) and the identified unit of time. It considers the missing date components and the unit of time in the algorithm and determines the best calculated age. If it cannot determine the age value, the Calculated Age value will be blank, or missing, and the Missing Value Reason will be set to the appropriate value.